AMENDMENTS TO THE CLAIMS

The current claims follow. For claims not marked as amended in this response, any difference in the claims below and the previous state of the claims is unintentional and in the nature of a typographical error.

1-2. (Canceled)

3. (Previously Presented) The mobile terminal of claim 28, wherein said smart antenna processing module includes:

a plurality of buffers configured to cache received data information, wherein input ends of the plurality of buffers are respectively connected with the plurality of groups of radio frequency signal processing modules;

a plurality of weight adjusting modules, each configured to weigh data outputted from each of the plurality of buffers according to a respectively received weight;

a combiner configured to combine the weighted data outputted from each of the plurality of weight adjusting modules and outputting combined data; and

a controller configured to receive data information outputted from the plurality of radio frequency signal processing modules, synchronize data streams inputted into the smart antenna processing module according to the control information, and provide said weight to each of the plurality of weight adjusting modules.

4. (Original) The mobile terminal of claim 3, wherein said buffers are ring-FIFOs.

5. (Original) The mobile terminal of claim 4, wherein a size of each ring-FIFO is one time slot.

6. (Previously Presented) The mobile terminal of claim 23, wherein said control information at least includes: a signal used to enable the smart antenna processing module, downlink pilot time slot data and a Midamble.

7. (Canceled)

8. (Previously Presented) The mobile terminal of claim 3, wherein said controller includes a synchronization controller configured to synchronize sub-frames of the input multi-channel signals by matching the input multi-channel signals with said down-link pilot time slot data of said control information, and synchronize time slots of the input multi-channel signals by matching the input multi-channel signals with said Midamble of said control information; and

said controller includes a combining controller configured to calculate said weights provided to the weight adjusting module according to one or more Midambles of the input multi-channel signals and said Midamble of the control information.

9. (Previously Presented) The mobile terminal of claim 28, wherein the mobile terminal is applied to cellular communication mobile terminals or other wireless communication terminals, wireless LAN terminals employing one of following standards: TD-SCDMA, GSM, GPRS, EDGE, WCDMA, CDMA IS95, CDMA2000.

10. (Previously Presented) A method for a mobile terminal with smart antennas comprising:

(a) receiving multi-channel radio frequency signals, and transforming the radio frequency signals into multi-channel baseband signals;

(b) generating control information according to one channel baseband signals within the multi-channel baseband signals;

(c) enabling smart antenna baseband processing, and combining the multi-channel baseband signals into single-channel baseband signals according to the control information received one-off; and

(d) baseband processing said single-channel baseband signals,

wherein step (c) further includes:

(c1) caching the input multi-channel baseband signals before enabling the smart antenna baseband processing;

(c2) synchronizing said input multi-channel baseband signals with synchronization information included in the control information according to said control information, after enabling the smart antenna baseband processing;

(c3) calculating weights according to said input multi-channel baseband signals and said control information;

(c4) respectively weighting said cached data according to said calculated weights; and

(c5) combining said weighted data to carry out said baseband processing.

11. (Original) The method of claim 10, wherein step (b) is completed in a baseband processing module.

12. (Canceled)

13. (Previously Presented) The method of claim 10, wherein step (c2) is completed within one channel of a smart antenna processing module.

14. (Previously Presented) The method of claim 10, wherein said control information at least includes: a signal used to enable the smart antenna baseband processing, down-link pilot time slot data and a Midamble.

15. (Previously Presented) The method of claim 10, wherein said control information at least includes: a signal used to enable the smart antenna baseband processing, a weight-algorithm selecting signal, down-link pilot time slot data and a Midamble.

16. (Previously Presented) The method of claim 14, wherein the step (c2) further includes:

(c21) synchronizing sub-frames of said input multi-channel baseband signals by matching the down-link pilot time slot data of said control information with said input multi-channel baseband signals; and

(c22) synchronizing down-link pilot time slots of said input multi-channel baseband signals by matching the Midamble of said control information with said input multi-channel baseband signals.

17. (Previously Presented) The method of claim 15, wherein the control information employed in step (c3) is a Midamble.

18. (Original) The method of claim 10, wherein the method is applied to cellular communication mobile terminals or other mobile wireless communication terminals, wireless LAN terminals employing one of following standards: TD-SCDMA, GSM, GPRS, EDGE, WCDMA, CDMA IS95, CDMA2000.

19. (Previously Presented) A device for processing multi-channel signals received by smart antennas, comprising:

a plurality of buffers, each configured to cache respective inputted multi-channel signals;

a plurality of weight adjusting modules, each associated with a respective one of the plurality of buffers and configured to weigh data outputted from the respective buffer according to a respectively received weight;

a combiner configured to combine the weighted data outputted from each of the plurality of weight adjusting modules so as to combine said inputted multi-channel signals into single-channel signals; and

a controller configured to receive said multi-channel signals, and provide a respective weight to each of the plurality of weight adjusting modules according to the control information received one-off while synchronizing said multi-channel signals inputted into the device.

20. (Original) The device of claim 19, wherein said buffers are ring-FIFOs.

21. (Original) The device of claim 20, wherein a size of each ring-FIFO is one time slot.

22. (Previously Presented) A mobile terminal, comprising:

a receiver configured to receive radio frequency signals from a base-station via down-link, wherein the receiver is configured to transform multi-channel signals received by smart antennas in the receiver to single-channel signals to carry out a baseband processing according to control information received one-off by the receiver;

wherein said control information is based upon data outputted from one of a plurality of groups of radio frequency signal processing modules before processing by said smart antennas is enabled, and

wherein said control information at least includes: a signal used to enable the smart antenna baseband processing, down-link pilot time slot data and a Midamble.

23. (Previously Presented) A mobile terminal with smart antennas, comprising:

a plurality of groups of radio frequency signal processing modules configured to transform received multi-channel radio frequency signals to multi-channel baseband signals;

a smart antenna processing module configured to smart antenna baseband process said multi-channel baseband signals outputted from said plurality of groups of radio frequency signal processing modules so as to combine said multi-channel baseband signals into single-channel baseband signals, according to control information received one-off as said smart antenna processing module is enabled; and

a baseband processing module configured to provide said control information to said smart antenna processing module, and baseband process said single-channel baseband signals outputted from said smart antenna processing module;

wherein said smart antenna processing module includes:

a plurality of buffers configured to cache received data information, wherein input ends of the plurality of buffers are respectively connected with the plurality of groups of radio frequency signal processing modules;

a plurality of weight adjusting modules, each configured to weigh data outputted from each of the plurality of buffers according to a respectively received weight;

a combiner configured to combine the weighted data outputted from each of the plurality of weight adjusting modules and output the combined data; and

controller configured to receive data information outputted from the plurality of radio

frequency signal processing modules, synchronize data streams inputted into the smart antenna processing module according to the control information, and provide said weight to each of the plurality of weight adjusting modules.

24. (Previously Presented) The mobile terminal of claim 23, wherein said buffers are ring-FIFOs.

25. (Previously Presented) The mobile terminal of claim 24, wherein a size of each ring-FIFO is one time slot.

26. (Previously Presented) The mobile terminal of claim 23, wherein said control information at least includes: a signal used to enable the smart antenna processing module, a weight-algorithm selecting signal, downlink pilot time slot data and a Midamble.

27. (Previously Presented) The mobile terminal of claim 26, wherein

said controller includes a synchronization controller configured to synchronize sub-frames of the input multi-channel signals by matching the input multi-channel signals with said down-link pilot time slot data of said control information, and synchronize time slots of the input multi-channel signals by matching the input multi-channel signals with said Midamble of said control information; and

said controller includes a combining controller configured to calculate said weights provided to the weight adjusting module according to one or more Midambles of the input multi-channel signals and said Midamble of the control information.

28. (Previously Presented) A mobile terminal with smart antennas, comprising:

a plurality of groups of radio frequency signal processing modules configured to transform received multi-channel radio frequency signals to multi-channel baseband signals;

a smart antenna processing module configured to smart antenna baseband process said multi-channel baseband signals outputted from said plurality of groups of radio frequency signal processing modules so as to combine said multi-channel baseband signals into single-channel baseband signals, according to control information received one-off as said smart antenna processing module is enabled; and

a baseband processing module configured to provide said control information to said smart antenna processing module, and baseband process said single-channel baseband signals outputted from said smart antenna processing module;

wherein said control information at least includes: a signal used to enable the smart antenna processing module, downlink pilot time slot data and a Midamble.

29. (Previously Presented) A method for a mobile terminal with smart antennas comprising:

(a) receiving multi-channel radio frequency signals, and transforming the radio frequency signals into multi-channel baseband signals;

(b) generating control information according to one channel baseband signals within the multi-channel baseband signals;

(c) enabling smart antenna baseband processing, and combining the multi-channel baseband signals into single-channel baseband signals according to the control information received one-off; and

(d) baseband processing said single-channel baseband signals,

wherein said control information at least includes: a signal used to enable the smart antenna baseband processing, down-link pilot time slot data and a Midamble.

30. (Previously Presented) The method of claim 29, wherein step (b) is completed in a baseband processing module.

31. (Previously Presented) The method of claim 29, wherein the method is applied to cellular communication mobile terminals or other mobile wireless communication terminals, wireless LAN terminals employing one of following standards: TD-SCDMA, GSM, GPRS, EDGE, WCDMA, CDMA IS95, CDMA2000.